UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE DEPARTMENT OF COMPUTER ENGINEERING FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY

Module name	Numerical Methods		
Module level	Undergraduate		
Code	EW184301		
Courses (if applicable)	Numerical Methods		
Semester	3 / Fall (Gasal)		
Contact person	Eko Pramunanto, S.T, M.T.		
Lecturer	Eko Pramunanto, S.T, M.T.		
Language	Indonesia / English		
Relation to	Undergraduate degree program, mandatory, 3 rd semester.		
curriculum	{semester}		
Type of teaching,	Lecture, < 60 students, 170 MINUTES 3 SKS		
contact hours			
Workload	1. Lectures: 3 x 50 = 150 minutes (2.5 hours) per week.		
	2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hou	urs) per	
	week.		
	3. Private study: 3 x 60 = 180 minutes (3 hours) per week.		
Credit points	3 credit points (sks).		
Requirements	A student must have attended at least 75% of the lectures to sit in		
according to the	the exams.		
examination			
regulations Mandatory			
prerequisites			
Learning outcomes	CLO-1 Able to explain and implement methods to	PLO-3	
and their	resolve errors, number representation, and	PLO-5	
corresponding PLOs	Taylor's theorem.		
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	CLO-2 Able to explain and implement methods to	PLO-3	
	resolve nonlinear equations.	PLO-5	
	CLO-3 Able to explain and implement methods to	PLO-3	
	resolve linear equations.	PLO-5	
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	CLO-4 Able to explain and implement methods to	PLO-3	
	resolve regressions.	PLO-5	
	CLO-5 Able to explain and implement methods to	PLO-3	
	resolve interpolation.	PLO-5	
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	CLO-6 Able to explain and implement methods to	PLO-3	
	resolve numerical integration.	PLO-5	
	CLO-7 Able to explain and implement methods to	PLO-3	
	resolve numerical derivatives.	PLO-5	
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	CLO-8 Able to explain and implement methods to resolve differential equations.	PLO-3 PLO-5 PLO-6
Content	In this course, students will learn how to solve mathematical problems using numerical algorithm approaches. Topics include errors, number representation, Taylor's theorem, nonlinear equations, linear equations, interpolation, regression, numerical integration, numeric derivatives and differential equations.	
Study and examination requirements and forms of examination	 In-class exercises Quiz 1 and 2 Assignment 1, 2, 3 Mid-term examination Final examination 	
Media employed	LCD, whiteboard, websites (myITS Classroom).	
Assessments and Evaluation	CO-1: Question no 1 in midterm exam (10%) CO-2: Question no 2 in midterm exam (10%) CO-3: Question no 3 in midterm exam (10%) CO-4: Assignment 1 (5%), question no 4 in midterm exam Quiz 2 (5%) CO-5: Question no 1 in final exam (10%), question no 2 in f exam (10%) CO-6: Assignment 2 (5%), question no 3 in final exam (10%) CO-7: Assignment 3 (5%), question no 4 in final exam (5%) CO-8: Question no 4 in midterm exam (5%)	inal
Reading List	 Greenbaum and T. P. Chartier. Numerical Methods: De Analysis and Computer Implementation of Algorithms. Princeton University Press, 2012. W. H. Press, S. A. Teukolsky, W. T. Vetterling, B. P. Flank Numerical Recipes: The Art of Scientific Computing. Car University Press, 2007. L. R. Scott. Numerical Analysis. Princeton University Presonant Computing Presonant Computing Description of Numerical Analysis Cambridge University Press, 2003. 	nery. nbridge ess,